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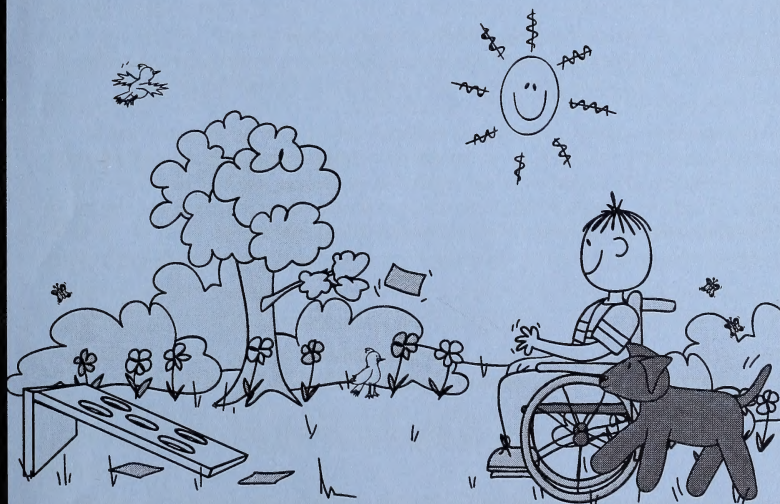


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GRADE THREE MATHEMATICS: MODULE 7

DATA AND CHANCE

Home Instructor's Guide: Days 1-9
and
Assignment Booklet 7A



Learning
Technologies
Branch

Alberta
LEARNING

Grade Three Mathematics
 Module 7: Data and Chance
 Home Instructor's Guide: Days 1–9 and Assignment Booklet 7A
 Learning Technologies Branch
 ISBN 0-7741-2319-2

| | |
|-------------------------------|---|
| This document is intended for | |
| Students | ✓ |
| Teachers | ✓ |
| Administrators | |
| Home Instructors | ✓ |
| General Public | |
| Other | |



You may find the following Internet sites useful:

- Alberta Learning, <http://www.learning.gov.ab.ca>
- Learning Technologies Branch, <http://www.learning.gov.ab.ca/ltb>
- Learning Resources Centre, <http://www.lrc.learning.gov.ab.ca>

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MODULE 7: DATA AND CHANCE

INTRODUCTION

In Days 1 through 10, the student learns that by collecting, organizing, recording, representing, and analysing data, many questions can be answered. The student will develop and implement plans to collect data and learn different ways of displaying data, how to rank it, how to make graphs, and how to analyse and compare data. In addition, the learning will include making predictions and inferences to solve problems and finding new information by performing arithmetic operations on the data. By collecting, sorting, examining, and displaying data, the student will discover new things about the people and things in his or her life.

To reinforce these concepts, help the student collect data about his or her community. Take surveys of the type of houses there are; the number of windows houses have; or the kinds of trees, buildings, or stores in the community. Encourage the student to graph the growth of a friend or family member, the growth of a plant, the weather, various collections, the foods people eat for lunch, and so on.

In the second half of the module, the lessons focus on chance—the predictable and unpredictable outcomes of events. The student will learn the language of chance and probability beginning on Day 11. The student will describe the outcomes of real-world events and experiments using terms such as *chance*, *likely*, *less likely*, *more likely*, *impossible*, *certain*, and *uncertain*. The student will conduct probability experiments, predict their outcomes, and draw conclusions from the results.

Help the student use the language of probability by describing outcomes of events in the home and community. Ask the student to say whether events that occur in his or her own life are likely, less likely, impossible, or certain to happen. For example, practise the terms of chance by asking your student about the outcome of a game, whether it will be a cold winter or hot summer, how the plants in the garden will do, and so on.

DAILY SUMMARY

DAY 1: The student reviews what data is (facts or information often collected by surveys and displayed in graphs), and looks at how it is represented in pictographs. Go over the data and its representation on the graphs with the student. Ensure he or she understands how pictographs show information at a glance. Discuss the data shown on all the graphs.

Discuss what a graph is; a graph displays information in a clear and concise way. A graph also answers many questions. Talk about data and how it is used in everyday life. Data is not just found on graphs. Understanding how to read and interpret data is a vital component of living.

Review the different types of graphs the student is familiar with from grades one and two. The student should be familiar with pictographs, where the pictures or symbols of the objects are put in rows, and bar graphs, where each object is represented by a filled-in box on graph paper.

The last part of the lesson helps the student to understand some of the questions a graph can answer and why people use graphs.

Students continue self-marking their activities by using the “Answer Key to the Self-Marking Activities” in the Appendix. Continue to monitor and assist your student as required. The student will be expected to self-mark activities in Grade Four Mathematics.

DAY 2: The student examines and analyses data that has already been collected. The student will learn that he or she can analyse data to answer questions. Help the student write his or her own daily schedule and display it on the graph. Today’s activities provide a good review of measuring time.

DAY 3: In today’s activities the student learns how to rank data, or put it in order. Ensure the student understands what ranking is. Help the student rank and graph his or her own activities. You will also time the student for 2 minutes as he or she completes a multiplication exercise. Assist your student with the Multiplication Facts Graph as needed.

DAY 4: Today’s activities focus on using tally marks and displaying the data the marks represent on graphs. Guide the student through the process of recording data with tally marks.

DAY 5: The student learns how to display the same data in different ways—on bar graphs and on pictographs.

Review the following methods of collecting information the student learned in Grade Two Mathematics:

- counting (count out the number)
- measuring (the height or weight of family and friends, their shoe sizes, how far they can jump, and so on)
- surveying (a way of finding out information about people by asking them questions about themselves).

DAY 6: The student learns about making predictions. Allow the student time to survey people and complete a tally chart. Monitor the student’s choice of question. Having the question written out would be helpful. Remind the student to keep the data collected for the lessons on Day 7.

DAY 7: In today's lessons, the student learns that new information can be obtained by performing arithmetic operations on the data already collected. The student may use a calculator.

The student begins surveying family members and friends today. Ensure the student has the data collected before Day 9.

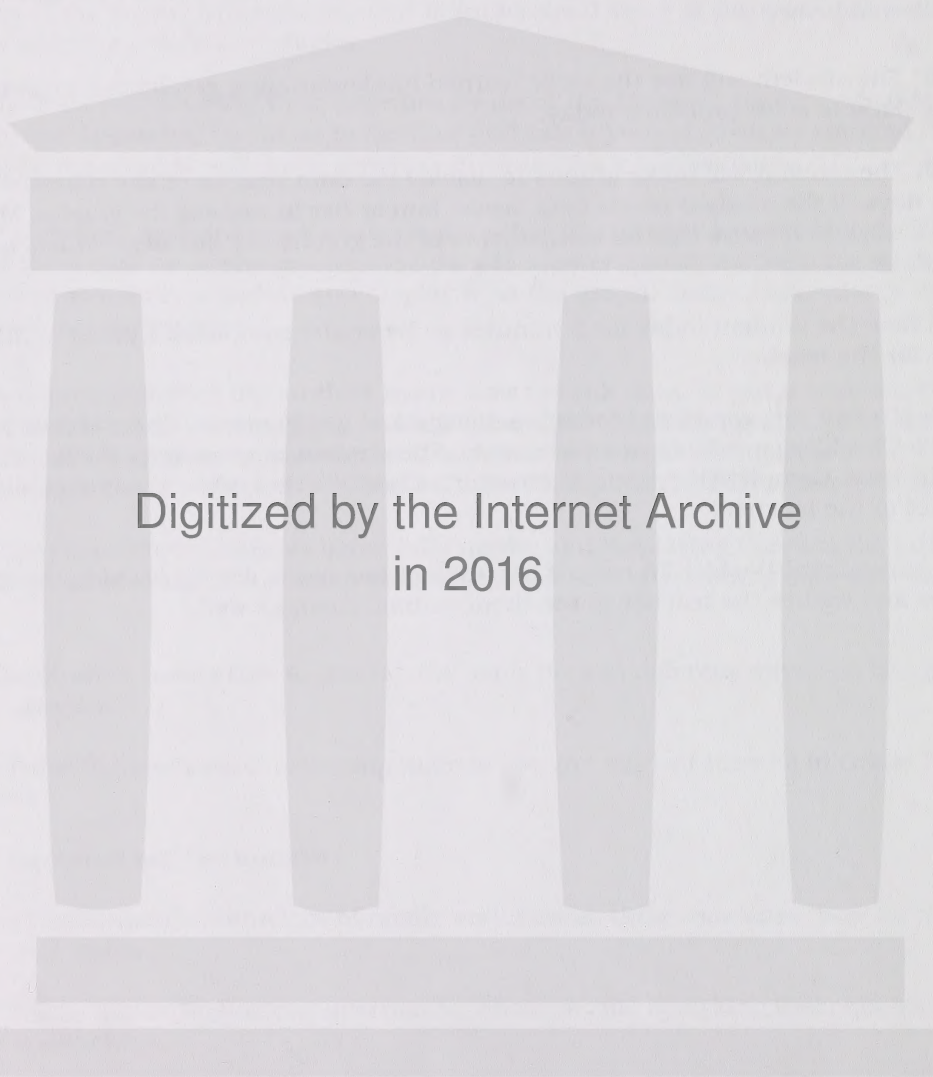
DAY 8: The student will use the skills learned (understanding graphs and knowing how to read the data) to solve problems today.

DAY 9: The student will make graphs to display the data that he or she collected over the last few days. If the student needs help, assist him or her in making the graphs. Monitor the student's work to be sure that all components of the graphs are included—titles, labels, and correct data.

You will time the student today for 2 minutes as he or she completes a timed multiplication exercise for the teacher.

After the student has completed today's activities and assignments, direct him or her to the Student's Checklist and Student's Comments. The student may work on the list alone or with your help. Complete the Home Instructor's Checklist and add any comments that may be helpful to the teacher.

Submit Assignment Booklet 7A now. If the student has made graphs listed in the Extension Activities and wishes the teacher to see them, submit them as well.



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ASSIGNMENT BOOKLET 7A

Grade Three Mathematics
Module 7: Days 1–9

Home Instructor's Comments and Questions

Home Instructor's Signature

FOR SCHOOL USE ONLY

Assigned Teacher:

Date Assignment Received:

Grading:

Additional Information:

FOR HOME INSTRUCTOR USE (if label is missing or incorrect)

Student File Number:

Date Submitted:

Apply Module Label Here

Name

Address

Postal Code

*Please verify that preprinted label is for
correct course and module.*

Teacher's Comments

Teacher's Signature

Home Instructor: Keep this sheet when it is returned to you as a record of the student's progress.

INSTRUCTIONS FOR SENDING IN THIS DISTANCE LEARNING ASSIGNMENT BOOKLET

When you register for distance learning courses, you are expected to send in Assignment Booklets for corrections regularly. Try to send each Assignment Booklet as soon as you have completed it. Before sending your Assignment Booklet, please check the following:

- Are all the assignments completed? If not, explain why.
- Has your work been reread to be sure the spelling and details are correct?
- Is the record form filled out and the correct module label attached?

MAILING

1. Postage Regulations

Do **not** enclose letters with Assignment Booklets.

Send all letters in a separate envelope.

2. Postage Rates

Take your Assignment Booklet to the post office and have it weighed. Attach enough postage and seal the envelope. Assignment Booklets will travel faster if correct postage is used and if they are in large envelopes that are no more than two centimetres thick.

FAXING

1. Assignment Booklets may be faxed. Contact your teacher for the fax number.
2. All faxing costs are the responsibility of the sender.

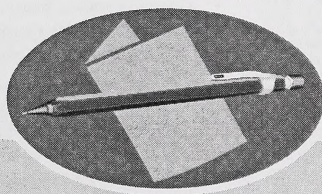
E-MAILING

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Grade Three Mathematics

Module 7

Data and Chance **ASSIGNMENT BOOKLET 7A**



Grade Three Mathematics
Module 7: Data and Chance
Assignment Booklet 7A
Learning Technologies Branch

| | |
|-------------------------------|---|
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1. Journal Entry

Why do people use graphs?

2. Look at this pictograph and answer the questions below.

Favourite Sports

| | |
|---------------------|--|
| Hockey |       |
| Snowboarding |     |
| Volleyball |        |
| Soccer |           |

 = 1 person

- What data does the pictograph show? _____

- What is the favourite sport? _____
- How many people like volleyball? _____
- How many people like hockey best? _____
- What is the least favourite sport? _____
- How many people were asked about their favourite sports? _____

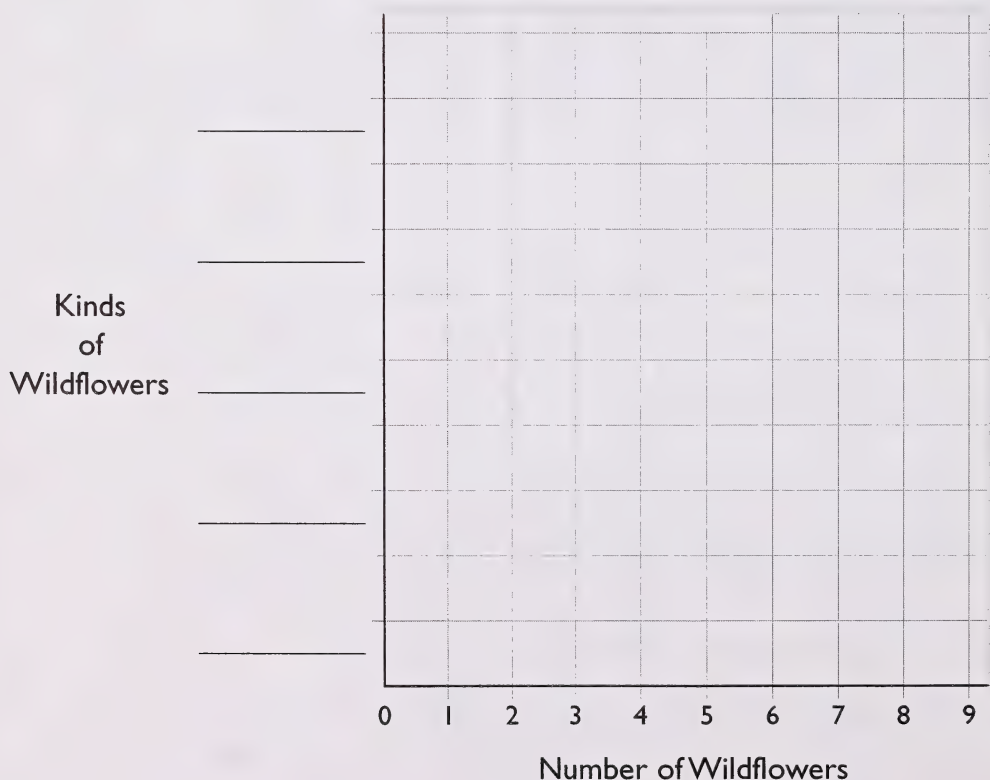
- Sarah counted different wildflowers on her farm one day. Put the wildflowers in rank order from the **greatest** to **least** number.

- _____
- _____
- _____
- _____
- _____

| | |
|------------|---|
| wild rose | 9 |
| yarrow | 2 |
| red clover | 6 |
| fireweed | 7 |
| columbine | 3 |

- Display the data on the following horizontal bar graph. Use the rank order of greatest number seen to least seen.

Wildflowers on My Farm



1. Journal Entry

What are tally marks and how are they used?

2. Students in Luke's class at school donated money to the wheelchair athletes in their city. The chart shows the amount donated by each student.

| Money Donated to Wheelchair Athletes (\$) | | | |
|---|------|---------|------|
| Sandy | 4.00 | Jasmine | 3.00 |
| Mark | 2.00 | Brianna | 4.00 |
| Matthew | 2.00 | Hannah | 1.00 |
| Su Lee | 3.00 | Andrew | 1.00 |
| Frank | 1.00 | Felipe | 2.00 |
| Jacob | 2.00 | Abdul | 2.00 |
| Emily | 3.00 | Sam | 2.00 |
| Jimmy | 3.00 | Kaitlyn | 3.00 |

Use the donation chart to answer the following questions.

- a. Complete the tally chart. The donations of \$1.00 have been done for you.

| Money Donated (\$) | Tally |
|--------------------|-------|
| 1.00 | /// |
| 2.00 | |
| 3.00 | |
| 4.00 | |

Use the tally chart to answer the next questions.

- b. What amount was donated by the fewest students? _____
- c. What amount was donated by the most students? _____
- d. How many students donated \$3.00? _____
- e. How many students donated \$1.00? _____

Luke's class was planning a pizza lunch. They needed to collect information about what type of pizza to buy. Luke did a survey of his grade three class. Here is the data he collected:

- Ham and Pineapple

##

- Vegetable

###

- Ham and Mushroom

//

- Cheese

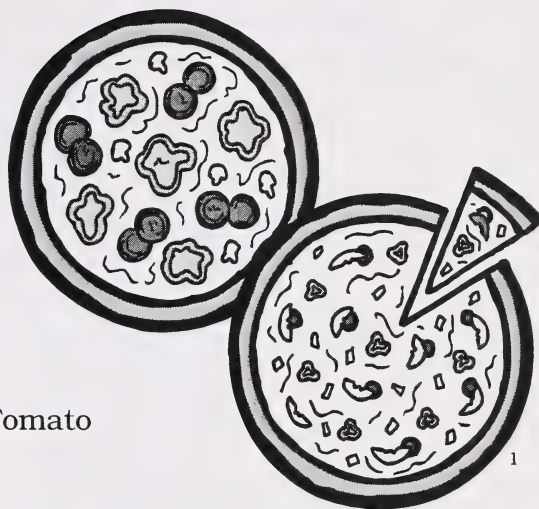
///

- Pepperoni

////

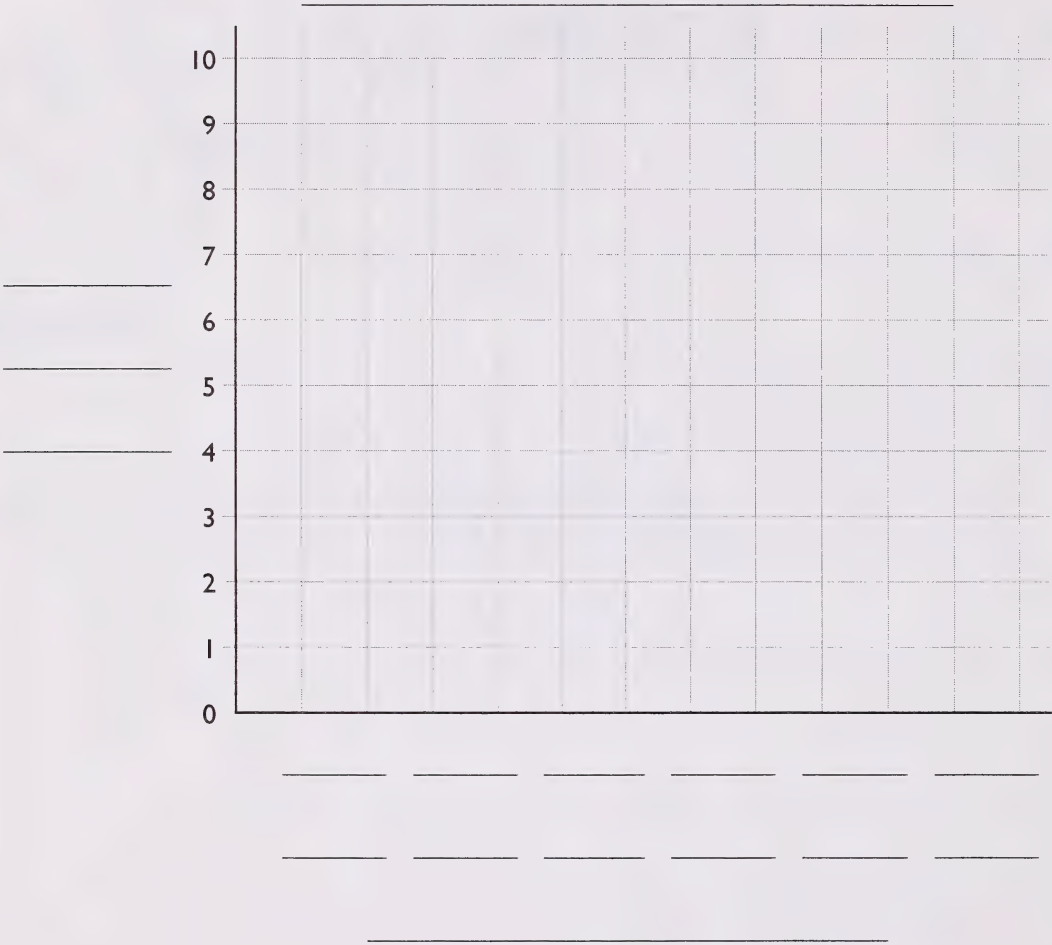
- Bacon and Tomato

/



1. Help Luke organize his data by completing the following tally chart. Begin by giving each column a title.

2. Show Luke’s data by using the form to make a vertical bar graph. Be sure to give your graph a title. Put labels where needed.



3. Show Luke’s data by using the following form to make a pictograph. Give your graph a title. Use a suitable picture or symbol and tell what it stands for.

| | |
|--|--|
| | |
| | |
| | |
| | |
| | |
| | |

4. a. Based on Luke’s data, which three types of pizza should Luke’s class order for lunch?

b. Why did you choose these types to order?

5. Which type of pizza is least popular with students in Luke’s class?

Five families in Sarah's community recorded the amount of money each spends on groceries in one week.

| | |
|----------|--------|
| Newman | \$ 140 |
| Demers | \$ 490 |
| Boyko | \$ 250 |
| Cardinal | \$ 210 |
| Chu | \$ 315 |



1. Rank order the amounts from least money spent to most money spent on groceries each week. Write the family name.

Amount Spent

Family Name

2. Which two families spend about twice as much as the Newman family?

3. Which family spends about half of what the Demers family does?

4. Predict how much money the Newman family will spend on groceries in a month. Show how you got your answer.

The chart below shows how many different birds Sarah and her bird-watching friends counted at the end of one day.

| Type of Bird | Number |
|--------------|--------|
| Bluejay | 3 |
| Magpie | 8 |
| Nuthatch | 7 |
| Chickadee | 12 |
| Robin | 9 |
| Crow | 4 |
| Sparrow | 11 |
| Flicker | 2 |

1. Which bird was seen the most?

2. Which bird was seen least?

3. How many birds in all did they see in one day? (You may use a calculator.)

4. If Sarah's friends were to continue counting birds, how many of each would you predict they would see in a week? Fill in the chart with your predictions. You can use a calculator.

| Type of Bird | Number Seen in One Day | Number Seen in One Week |
|--------------|------------------------|-------------------------|
| Bluejay | 3 | |
| Magpie | 8 | |
| Nuthatch | 7 | |
| Chickadee | 12 | |
| Robin | 9 | |
| Crow | 4 | |
| Sparrow | 11 | |
| Flicker | 2 | |

1. Journal Entry

Which graph from today's activity was the most interesting to you? Why?

2. Select one graph from today's activities in the Student Module Booklet to send to your teacher with your Assignment Booklet 7A. Write three questions someone could ask about the graph.

- ---
- ---
- ---

Timed exercise: 2 minutes

Ask your home instructor to time you for 2 minutes. Do as many questions as you can in two minutes. Write how many you completed.

$8 \times 5 = \underline{\hspace{2cm}}$

$9 \times 2 = \underline{\hspace{2cm}}$

$7 \times 5 = \underline{\hspace{2cm}}$

$7 \times 7 = \underline{\hspace{2cm}}$

$4 \times 4 = \underline{\hspace{2cm}}$

$9 \times 1 = \underline{\hspace{2cm}}$

$9 \times 0 = \underline{\hspace{2cm}}$

$8 \times 2 = \underline{\hspace{2cm}}$

$5 \times 5 = \underline{\hspace{2cm}}$

$4 \times 7 = \underline{\hspace{2cm}}$

$8 \times 4 = \underline{\hspace{2cm}}$

$3 \times 4 = \underline{\hspace{2cm}}$

$8 \times 0 = \underline{\hspace{2cm}}$

$3 \times 3 = \underline{\hspace{2cm}}$

$2 \times 7 = \underline{\hspace{2cm}}$

$$\begin{array}{r} 3 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} 1 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} 2 \\ \times 6 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 8 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 3 \\ \times 1 \\ \hline \end{array}$$

$$\begin{array}{r} 4 \\ \times 2 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} 7 \\ \times 4 \\ \hline \end{array}$$

| | |
|-------------------------|--|
| Number completed | |
| Number correct | |

STUDENT'S CHECKLIST
MODULE 7: DAYS 1 TO 9

| I can ... | Put a check mark beside the things you can do. |
|--|--|
| collect data using surveys and tally charts | |
| show data with rank ordering | |
| show the same data in more than one way | |
| make predictions about data | |
| use arithmetic operations to get new information | |

STUDENT'S COMMENTS

What I enjoyed most in this part of the module was _____

Something new that I learned in this part of the module was _____

HOME INSTRUCTOR'S CHECKLIST

Check **yes** or **not yet** for each question.

The student can . . .

- | | | |
|--|------------------------------|----------------------------------|
| • collect and organize data | <input type="checkbox"/> yes | <input type="checkbox"/> not yet |
| • display data using rank ordering | <input type="checkbox"/> yes | <input type="checkbox"/> not yet |
| • display the same data in more than one way | <input type="checkbox"/> yes | <input type="checkbox"/> not yet |
| • make predictions and inferences when solving problems | <input type="checkbox"/> yes | <input type="checkbox"/> not yet |
| • solve problems involving graphs and data | <input type="checkbox"/> yes | <input type="checkbox"/> not yet |
| • obtain new information by performing arithmetic operations on the data | <input type="checkbox"/> yes | <input type="checkbox"/> not yet |

HOME INSTRUCTOR'S COMMENTS

GRADE THREE MATHEMATICS: ASSIGNMENT BOOKLET 7A ITEMS FOR MAILING

In the box to the left of the listed items, please check each item as you include it for mailing to the teacher.

DAY 9

- ☐ One graph from Day 9 activities

DAY 9

- ☐ Assignment Booklet 7A